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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/824,798	04/04/2001	Paul M. Reepschlager	3650-011US	2966

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EXAMINER	
NGUYEN, TU T	
ART UNIT	PAPER NUMBER
2877	

DATE MAILED: 12/26/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/824,798	Applicant(s) REEPSCHLAGER ET AL.	
	Examiner Tu T Nguyen	Art Unit 2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondenc address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-20 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-20 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 04 April 2001 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Serial Number: 09/824,798
Filing Date: 04/04/01

Paper No: 3

Detailed Office Action

Specification

In the specification, page 1, line 9, the information "Ser. No. _____" should be replaced to " Ser. No. 09/824,779".

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 5,20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

1) In claim 5, line 5, the term "may be" is a relative term which render the claim indefinite. It is not certain "when the determination should occur" and "when the determination should not occur".

2) In claim 20, line 3, the claimed "said receive amplifier" lacks of antecedent basis.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1,6-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berger et al (6,088,152).

With respect to claim 1, Berger discloses a method for determining a Raman gain of an optically amplified fiber optic span 130 (fig 2). The method comprises: measuring a power profile 25, 85 (fig 4; column 4, lines 27-32, lines 55-62; Po and Pi) for each of the plurality of system components 100-1 ... 100-k (fig 2); transmitting the measured power profiles to a central location 75 (fig 4; column 4, lines 55-62; Po, Pi); dynamically calculating the Raman gain/tilt base on the power profiles of the components (column 1, lines 56-60; column 4, lines 55-62).

Berger does not explicitly discloses the step of transmitting changes in the measured power profiles to the central location. However, since Berger teaches in column 1, lines 11-14 that the Raman gain is defined as the difference between the power of the long and short wavelengths and since Berger's central location 75 (fig 4) uses the two measured powers Po (the short wavelength) and Pi (the long wavelength) to determine the Raman gain/tilt, it would have been obvious that Berger calculates the changes in the measured power profiles using the available wavelengths P0 and Pi in the central location 75 (fig 4). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to include the step of calculating changes in the measured power profile to Berger's method and to transmit to the central location 75 (fig 2) in order to reduce computational burden of the central location to

improve the speed and efficiency to the system.

With respect to claim 6, Berger does not disclose a conveying basic information over an overhead channel. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to convey basic information directly from one device to another device over an overhead channel in order to prevent transmission delay which is well known to happen when transmitting through several intermediate systems.

With respect to claim 7, Berger discloses the step of transmitting changes when the magnitude of the change is outside limits defined by a tolerance band (column 6, lines 7-11). Refer to discussion in claim 1 above for explanation on transmitting changes to the central location.

With respect to claim 8, Berger discloses measuring originating profile P0 100-1 (fig 2) at an output of the amplifier 130 (fig 4; column 4, lines 55-57); measuring an incident profile Pi at an input 130 of the amplifier 100-2 (fig 2) at the other end (column 4, lines 57-59). Berger does not explicitly teach measuring a loss profile of a fiber optic span. However, it would have been obvious to determine loss profile from the available originating profile and incident profile by determining the difference between the originating profile and incident profile, since obtaining the difference between the originating and the incident profile requires only routine skill in the art. It would have been obvious to include the step of measuring a loss profile of a fiber span to identify the defect of the fiber span easier.

With respect to claim 9, Berger does not explicitly disclose conveying a status update on a regular basis . However, Berger suggests monitoring the changes periodically (column 5, lines 1-4). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to transmit a conveying a status update on a regular basis in order to provide the system with a current information so that the system can be adjusted in advance to save the system's calculation time.

With respect to claim 10, Berger discloses dynamically calculating Raman gain profile (column 1, lines 49-52, lines 56-60). Berger does not explicitly disclose calculating the gain profile by summing incident profile with the loss profile and subtracting the result from the originating profile. However, Berger discloses a controller 75 (fig 4) that determines Raman gain using the incident profile Pi (column 4, lines 57-59) and originating profile P0 (column 4, lines 55-57). Further, Official Notice is taken that Raman value is determined as the difference between the originating power and the sum of the output signal from the fiber and the power loss would have been well known in the art. See In Re Malcolm 1942 C.D.589: 543 O.G.440. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to dynamically determining the Raman gain profile using the available originating and incident profile and the power loss data of the fiber, since determining Raman gain using the known available data and the data taught by Berger as required by a specific need requires only routine skill in the art.

With respect to claim 11, Berger does not explicitly disclose calculating Raman gain at

the receive amplifier. However, Berger teaches preconditioning optical signals prior to transmitting the signals over optical fiber span (column 1, lines 49-62). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to calculate the Raman gain at the receive amplifier in order to eliminate signal distortion before allowing the signal to propagate through the next fiber span. This would help improve system performance.

With respect to claim 12, refer to discussion in claim 1. The claimed system in claim 12 is just an extended of the method of claim 1. Further, Berger suggests using spectrum analyzer for measuring power profiles of the fiber optic span and system components (column 4, lines 27-32). Berger does not explicitly disclose using a plurality spectrum analyzer. However, Berger teaches monitoring and conditioning optical signals over an optical fiber span (column 1, lines 49-52). It would have been obvious to use multiple spectrum analyzers in order to determine power profile at each optical fiber span in parallel, since duplicating the number of spectrum analyzer of Berger required only routine skill in the art.

With respect to claim 13, refer to discussion in claim 6 above.

with respect to claim 14, Official Notice is taken that using a displaying for displaying the result would have been well known in the art. See In Re Malcolm 1942 C.D.589: 543 O.G.440. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to include a well known display to Berger's system in order to report the

result to the user to facilitate monitoring task to the user.

With respect to claims 15-16, Berger discloses a microcomputer 75 (fig 4) for receiving and dynamically calculating the Raman gain (column 4, lines 55-59; column 1, lines 56-60).

With respect to claim 17, Berger teaches integrating the means for receiving and dynamically calculating into one means 75 (fig 4) (column 4, lines 55-59; column 1, lines 56-60).

With respect to claim 18, Berger discloses a transmit amplifier 100_1 (fig 2) and the receive amplifier 100_2 (fig 2).

With respect to claims 19-20, Berger does not disclose integrating the transmit amplifier and a receive amplifier or integrating the means for receiving , means for dynamically calculating and receive amplifier. However, Berger discloses a transmit amplifier 100-1 (fig 2); a receive amplifier 100-2 (fig 2); a means for receiving 100-2 (fig 2), means for dynamically calculating 75 (fig 4), and a receive amplifier 100-2 (fig 2). It would have been obvious to integrate the devices of Berger to one another in order to improve compactness of the system, since integrating separate devices into one device requires only routine skill in the art.

Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berger et al

(6,088,152) in view of Stentz et al (6,163,636).

With respect to claim 2, refer to discussion in claim 1 above for calculating the Raman gain. Berger does not disclose a Raman Pump. However, Stentz discloses including a plurality of Raman pump 10 (fig 1) for providing additional optical amplification (column 3, lines 32-34). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to add a plurality of the Raman pump to the optical fiber optic span of Berger to reduce the Raman gain in order to maintain the signal strength when the signal travel along a distance to make the system more reliable.

With respect to claim 3, Berger in view of Stentz do not explicitly disclose the power setting for the Raman pump which are calculated relative to a loss profile of a fiber optic span measured under non traffic-carrying conditions. However, Using Raman pump to amplify the power loss of a fiber optic span would have been well known in the art. Further, since Stentz discloses several different Raman pumps with different power available to sufficiently compensate the power loss of the optical fiber (column 4, lines 10-16; column 1, lines 36-45).It would have been obvious to one having ordinary skill in the art at the time of the invention was made to set the power of the Raman pump to a loss profile in order to sufficiently make up for the power loss. Further, it would also have been obvious to use the loss profile measured under non-traffic carrying condition that provides the most stable characteristics of the fiber, since selecting the best profile to determine suitable power compensation require for a specific application requires only routine skill in the art.

With respect to claim 4, Berger discloses measuring originating profile P0 100-1 (fig 2) at an output of the amplifier 130 (fig 4; column 4, lines 55-57); measuring an incident profile Pi at an input 130 of the amplifier 100-2 (fig 2) at the other end (column 4, lines 57-59). Berger does not explicitly teach measuring a loss profile of a fiber optic span. However, it would have been obvious to determine loss profile from the available originating profile and incident profile by determining the difference between the originating profile and incident profile, since obtaining the difference between the originating and the incident profile requires only routine skill in the art. It would have been obvious to include the step of measuring a loss profile of a fiber span to identify the defect of the fiber span easier.

With respect to claim 5, Berger does not explicitly teach determining that changes in the measured profile have occurred when the incident profile changes, and the originating profile and the Raman pump's power remain unchange. However, it would have been obvious to conclude that there is a change in the measured profiles when there is a change in the incident profiles Pi (column 4, lines 57-59), and there is not any change in the originating profile P0 (column 4, lines 55-57) and the compensating power of the pumps, since determining if there is any changes in the measured profiles by comparing the available input data profiles and output data profile requires only routine skill in the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tu T Nguyen whose telephone number is (703) 306-9185. The examiner can normally be reached on M-T 7:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G Font can be reached on (703) 308-4881. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Tu Tuan Nguyen
Patent Examiner TC 2877
December 16, 2001/TTN